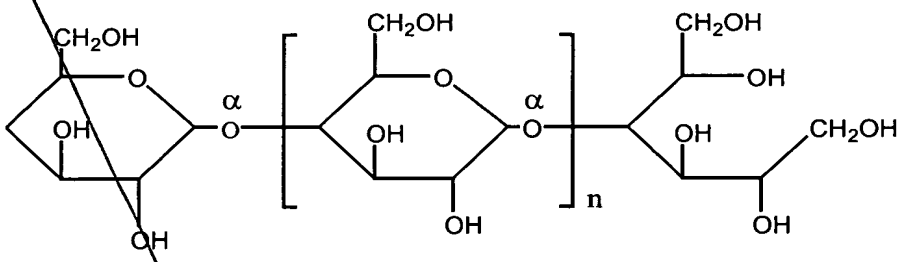
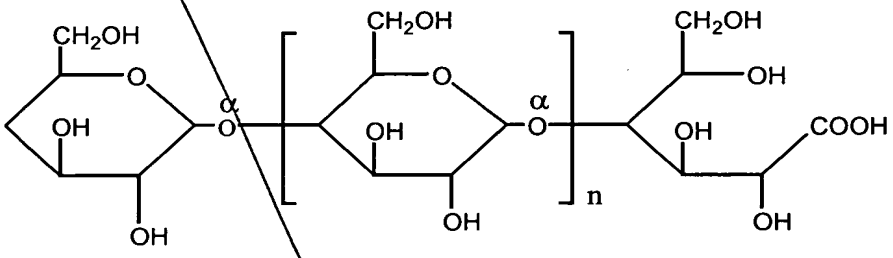
WHAT IS CLAIMED IS:

1. A sterilized peritoneal dialysis solution comprising:

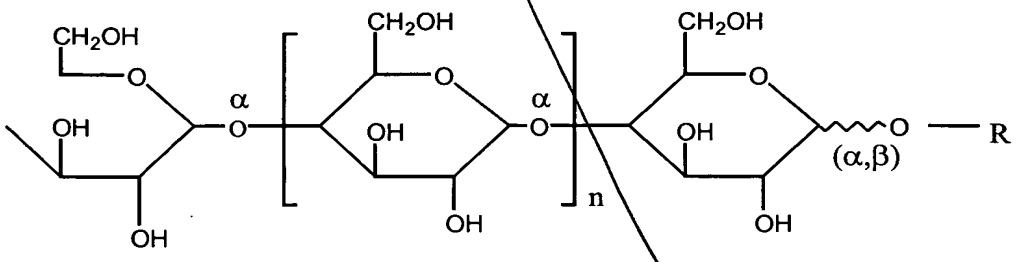
a starch comprising a glucose polymer selected from the group consisting of D-glucitol having the formula:



gluconic acid having the formula



and alkylglycoside having the formula



wherein R is selected from the group consisting of CH_3, CH_3CH_2, $(CH_2OH)_2CH$, $CH_2(OH)CH(OH)CH_2$, and $[CH_2(OH)CH(OH)CH_2(OH)]CH$, and wherein the polymer is linked by α-1,4 bonds, that comprise at least 85%, by number, of the linkages.

2. The peritoneal dialysis solution of claim 1 wherein the solution is substantially free of formaldehyde.

3. The peritoneal dialysis solution of claim 1 wherein the solution is substantially free of furfurals.

4. The peritoneal dialysis solution of claim 1 wherein the partially hydrolyzed starch is substantially of terminal aldehyde groups.

5. A method of administering an autoclavable osmotic agent to a subject in need thereof wherein the osmotic agent is prepared by the steps comprising:

providing a solution of starch dissolved in water; and

adding $NaBH_4$ to the starch solution to reduce the starch.

6. The method of claim 5 further comprising the step of

purifying the reduced starch solution by passing the reduced starch solution through an anionic exchange resin.

7. The method of claim 5 wherein the dissolving and adding steps are carried out at room temperature.

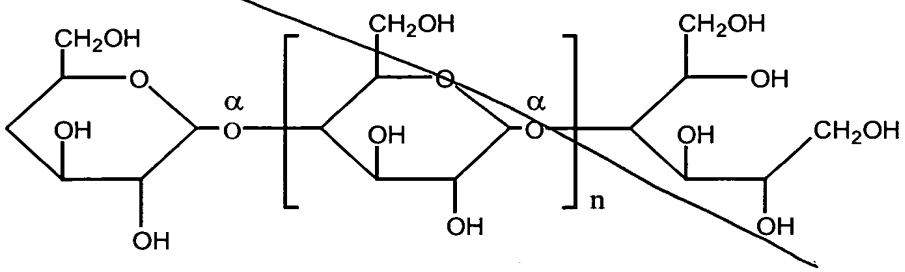
8. The method of claim 6 further comprising the following step after the adding step and prior to the purifying step:

allowing the solution to stand for about 10 hours.

9. The method of claim 5 wherein the starch is maltodextrin.

Subt A3

10. The method of claim 5 wherein the starch is reduced to an icodextrin linked predominately by α-1,4 bonds and having the formula:



11. A method of administering a sterilizable osmotic agent to a subject in need thereof wherein the osmotic agent is prepared by the steps comprising:

providing a solution of starch dissolved in water;

providing a solution of NaOCl; and

adding the NaOCl solution to the starch solution to oxidize the starch.

12. The method of claim 11 further comprising the step of

purifying the oxidized starch solution by passing the oxidized starch solution through a gel permeation chromatograph.

13. The method of claim 11 wherein the adding step is carried out at room temperature.

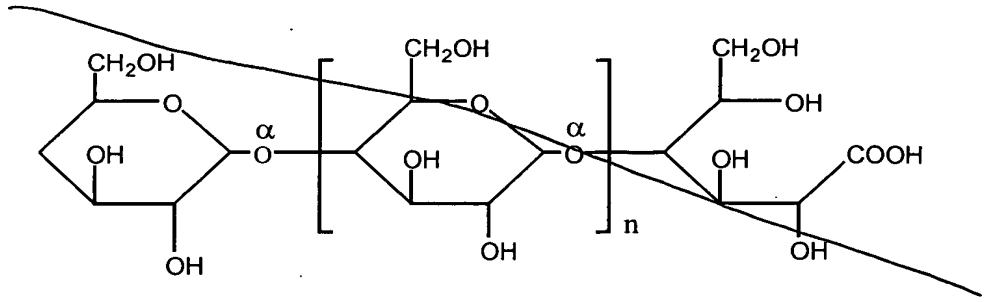
14. The method of claim 12 further comprising the following step after the adding step and prior to the purifying step:

allowing the solution to stand for about 2 hours.

15. The method of claim 11 wherein the starch is maltodextrin.

Subt A4

16. The method of claim 11 wherein the starch is oxidized to an icodextrin linked predominately by α-1,4 bonds and having the formula:



17. A method of administering a sterilizable osmotic agent to a subject in need of same wherein the osmotic agent is prepared by the steps comprising:

dissolving starch in an acid and an alcohol selected from the group consisting of methanol, butanol and glycerol.

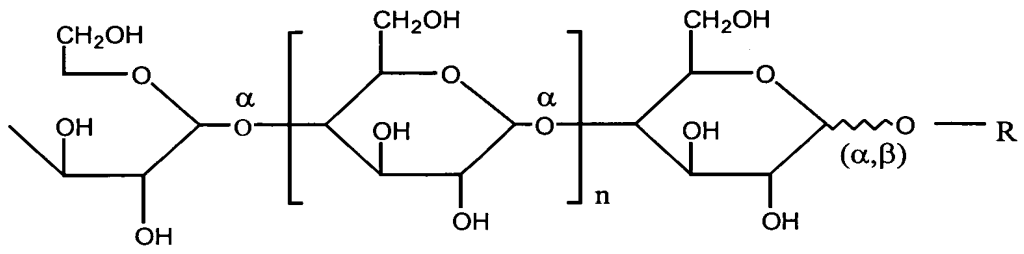
18. The method of claim 17 further comprising the step of stirring the starch, alcohol and acid for about 2 hours.

19. The method of claim 17 wherein the stirring step is carried out at a temperature of about 100°C.

20. The method of claim 17 wherein the starch is maltodextrin.

21. The method of claim 17 wherein the acid is HCl.

22. The method of claim 17 wherein the starch is glycosylated to an icodextrin linked predominately by α-1,4 bonds and having the formula:



wherein R is selected from the group consisting of CH_3, CH_3CH_2 and $(CH_2OH)_2CH$.